**Summary of Discussions in the Workshop on Strategic Energy Sector Policies in Nepal**

Gokarna Forest Resort, Nepal on November 5-6, 2018

The two-day workshop was jointly organized by the Ministry of Energy, Water Resources and Irrigation (MoEWRI) and the World Bank to take stock of the progress in energy sector reforms in Nepal and discuss ways forward and the next steps to achieve these goals. The workshop agenda can be found here. Approximately 60 participants were from government institutions such as Ministry of Finance (MoF), MoEWRI, Nepal Electricity Authority (NEA) and Alternative Energy Promotion Center, national energy companies, and development partners.

Following are the key takeaways and summary of the discussions during the workshop:

* ***Financial Viability of Nepal Electricity Authority***
* Improved financial viability of NEA would enhance private sector participation in the power sector, and therefore is a key factor for successful power sector reform.
* Key elements of the NEA’s financial viability plan are both: (a) cost optimization and (b) revenue optimization. Cost optimization can be achieved by the restructuring of NEA, optimization of generation cost, introduction of the competitive bidding of the power purchase agreements, reduction of Transmission & Distribution (T&D) loss and restructuring of tariff design which reflects capital expenditures. Revenue optimization can be achieved by construction of infrastructure, appropriate dividends from subsidiary companies of NEA, operationalization of trade department and transmission sector, energy efficient measures and clean-up of the balance sheet by waiving long-term liabilities. The financial viability action plan (FVAP) for NEA has been adopted by NEA Board of Directors and is currently under implementation.
* ***Operationalizing Power Trade***
* **Historical evolution and current status of power trade.** After the enactment of Electricity Act and Hydropower Development Policy in 1992, the generation sector was opened to the private sector, and import and export of power was allowed with the prior approval of the Government of Nepal (GoN). After the abolishment of the monopoly in the generation sector by NEA, NEA signed long-term PPAs with IPPs for more than 5,488 MW (through 229 projects) since its first signing of PPA for 60 MW in 1996. The total PPA applications in pipeline are 5,828 MW. Further, the share of supplied electricity imported from India has been increasing particularly after 2010, from around 15% to around 35 % of the total supply in 2016.
* **Future potential and prospects of power trade and challenges to overcome**. According to power simulation results, while Nepal relies on power imports in both the dry and wet season in FY 2018/2019, Nepal can be exporting power in wet seasons in FY 2023/2024 and is projected to no longer import power in FY 2028/2029. High investment potential in hydropower projects and a huge market for power trading in Bangladesh, Bhutan, India and Nepal (BBIN) sub-region also shows the high potential for power trading in Nepal in future. However, in order to operationalize power trade in Nepal, there are challenges to overcome, such as capacity constraints in existing transmission infrastructure of NEA and capacity building concerning power trading.
* **Institutional development of Nepal Power Trading Company Limited (NPTCL)**. NPTCL was established in 2017 as the first power trading company in Nepal to succeed the role of trading department of NEA. A principal shareholder of NPTCL is NEA which owns 51% of NPTCL’s share. The remaining shareholders are Electricity Generation Company Limited (17% share), National Transmission Grid Company Limited (17% share), and Hydroelectricity Investment and Development Company Limited (15% share). The roles of trading company could include: addressing seasonal variations in electricity requirements, PPA aggregator for existing PPAs, investment facilitation for signing of new PPAs, and planning and development of cross-border trading. A clear definition of “power trading” as a licensed activity under the Electricity Act is necessary. In this regard, while Electricity Act (1992) did not explicitly address this point, Electricity Regulatory Commission Act (2017) mentions power trading as a licensed activity..
* ***Challenges in Cross-border Power Trade***
* Cross-border power trading involves further challenges. How to build interconnecting lines and who bears the costs often leads to a controversy since each country has differing views on commercial feasibility or economic impact. There are also risks of currency fluctuation and political instability. Further, retail prices in the regional power market could be uncompetitive due to transmission charges and T&D losses. In order to overcome these barriers, appropriate laws and regulations as well as agreements between relevant countries should be considered.
* ***Developing a Power Market in Federal Nepal***
* In order to achieve a good, sustainable performance in the power sector in an emerging country, (i) systematic optimized planning and implementation of investments in the supply chain, (ii) efficient operational performance of utilities, (iii) financial sustainability, and (iv) adequacy of institutional and organizational arrangements in each segment of the sector are key factors based on the experience of power sector reform in other parts of the world.
* Currently, NEA is the vertically integrated national utility which monopolies the transmission and distribution sector. As for Nepal’s readiness for power market development, Electricity Regulatory Commission (ERC) Act is in place, NEA has been working on its organizational restructuring. NEA has also worked on infrastructure projects with development partners. However, there are still some challenges to overcome. First, it will take some time to complete transmission and distribution infrastructure projects. Second, ensuring the financial viability of distribution companies is difficult especially for rural areas. Subsidized tariffs will still be considered in rural areas since electricity is a life-line for basic infrastructure. Lastly, effectiveness of ERC should be pursued continuously.
* ***Pricing Mechanism of Energy Services***
* GoN is in the process of formulating Electricity Regulatory Commission (ERC) to be established under the ERC Act, as a first independent regulatory body in Nepal. ERC will issue regulations and guidelines on tariff-setting (trigger for DPC 2), and open access and transmission pricing (trigger for DPC 3). Expected result will be that the average tariff covers the full cost of electricity.
* For the retail tariff design, there are basically two approaches: rate of return (ROR) where the rate is determined based on the cost by energy service providers, and performance-based regulation (PBR) which considers the generation cost, transmission added value and manageable distribution added value and enables the competition among energy service providers. Precedents in Latin America show that PBR provides incentives for energy efficiency, improvement of quality of service, higher performances of distribution companies, and sustained reduction of loss. However, there have been very limited progress in connection of consumers in rural areas under the PBR retail tariff design. Regulations to address this issue, such as the continuation of subsidized tariffs in rural areas, should be considered.
* For the transmission pricing, there should be appropriate incentives for investments and system security, enhance competitive markets, be cost reflective, and be non-discriminatory among similar network users. Pricing options include both cost-based and market-based approaches. International best practices include pricing under postage stamp (cost-based approach) where the transmission pricing is equal across the country, and nodal pricing (market-based approach) where the transmission pricing differs depending on the supply/demand in each region. Most countries, especially small countries, started with a postage stamp approach. For a longer distance transmission/distribution, nodal and zonal pricing are the trend. Since Nepal is geographically long-shaped country, nodal pricing may work better.
* ***Environmental and Social Impact***
* It is important to establish appropriate environmental and social guidelines that ensure environmental and social sustainability and no excessive hindrance for development and investments. For instance, forest clearance delay has been one of the major bottlenecks affecting major infrastructure projects. Guidelines which ensure efficient processes as well as capacity building for human resources within the relevant authorities that review and monitor the development should be considered.
* E&S requirements in Nepal are governed by Water Resources Act 1992 and its Regulation 1993, Hydropower Development Policy 2001, Electricity Act 1992 and its Regulation 1993 and Environmental Protection Act 1997 and Environment Protection Rules 1997.
* The kind of the projects which requires either Initial Environmental Examination (IEE) or Environmental Impact Assess (EIA) have been reviewed and revised, and transmission line construction, electricity generation, and renewable energy projects require IEE or EIA. Projects requiring IEE have increased, while projects requiring EIA, which generally requires a public hearing as well as a longer public notice period, have decreased. In addition, For Supplementary EIA (SEIA), SEIA the public notice period has been shorten to 15 days from 30 days, and public hearing become unnecessary by the recent amendment in 2017. Further capacity building to human resources in the GoN institutions, for reviewing the applications and monitoring the projects is necessary.
* ***Poverty and Social Impact***
* The poverty and social impact analysis of the tariff reforms in Nepal shows that budget share of electricity expenditure after tariff increase is expected to be less than 3%, and as such, the impact of tariff increase on electricity affordability is small. However, it has to be noted that welfare impact on poor households is higher than on rich households (consumer welfare loss as a share of monthly expenditure is expected to be 0.93% for the poorest quintile in contrast to 0.53% for the richest quintile), and welfare impact on female-headed households is slightly higher than on male-headed households (consumer welfare loss as a share of monthly expenditure is expected to be 0.69% for female-headed households and 0.63% for male-headed households). In sum, power sector reform would benefit all since increased access to electricity and improving reliability of electricity supply is associated with better income and educational results, and the benefits of the power sector reform outweigh the costs from the viewpoint of poverty and social impact.
* ***Strategic Communications with Stakeholders and Importance of Media***
* Power sector development is deeply related to sensitive political and geopolitical matters, especially for hydropower projects and construction of transmission lines. While power sector institutions communicate with stakeholders regularly through press releases and media, there is little or no reliance on a systematic communications strategy and campaign to support power sector reforms. Strategic communications, based on the proven theories of human decision-making, are critical to building public and political support for power sector reform. The communications should start with research on opinions and social norm, and the objectives of the communications should be determined. Compelling messages which are clear and concise, as well as relevant to people’s lives (e.g., electricity tariff increases will reduce a load shedding and build a sustainable electricity sector) should be designed. Further, determination of the appropriate timeline and budget, as well as tactical approaches, is necessary. Identifying optimal channels and assignment of credible spokespeople are also important. Policy-makers are currently more likely to be influenced by social media, not television.